

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Big Otter Creek and Tributary to Big Otter Creek

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#### Waterbody Segment at a Glance:

**Counties:** Henry and St. Clair  
**Nearby Cities:** Brownington  
**Length of impairment:**  
• **Big Otter Creek:** 1.0 mile  
• **Tributary:** 1.0 mile  
**Pollutant:** pH  
**Source:** Otter Creek Abandoned  
Mine Land



State map showing location of watershed

**Note:** The current assessment of Big Otter Creek and Tributary to Big Otter Creek is based on water quality sampling conducted since the development of the 2002 303(d) list. This assessment still lists one mile of the tributary as impaired. New information obtained since then indicates that Big Otter Creek is not impaired.

#### TMDL Priority Ranking:

Big Otter Creek: Will request delisting

Tributary to Big Otter Creek: TMDL Approved 2004

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#### Beneficial uses of Big Otter Creek and Tributary

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

#### Use that is impaired

- Protection of Warm Water Aquatic Life

#### Standards that apply

- Missouri Water Quality Standards for pH found in 10 CSR 20-7.031(3)(E) state:  
“Water contaminants shall not cause pH to be outside of the range of 6.5-9.0.”

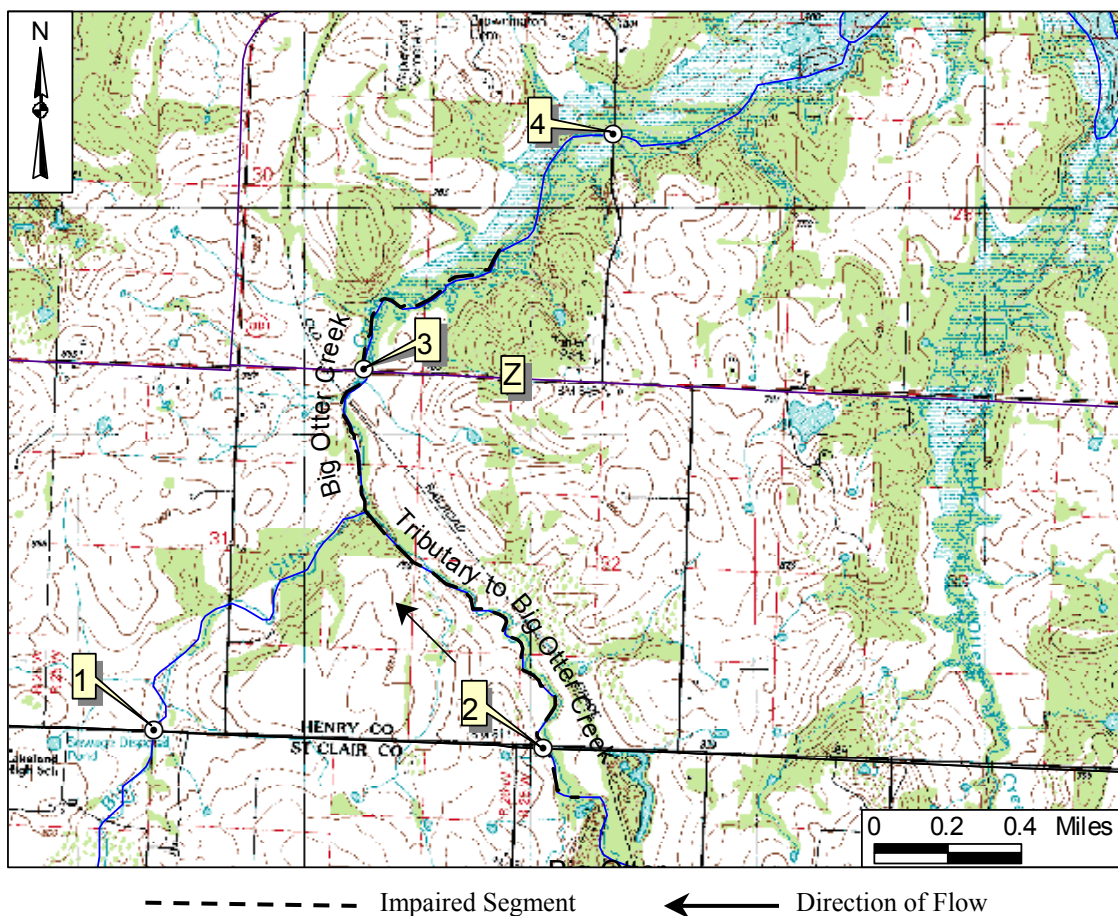
#### Description of the Problem

The Tributary to Big Otter Creek in northern St. Clair County and southern Henry County drains a 75 acre area of acidic coal wastes. Acid mine drainage was believed to affect all of Big Otter Creek between this coal waste area and Truman Reservoir. This resulted in numerous fish kills in the stream. The last mine-related fish kill in Big Otter Creek occurred in 1987. Landowners along the creek asserted that the poor water quality was affecting their livestock. The Department of Natural Resources reclaimed this area in 1998 at a cost of \$955,964. A 25 acre lake provides water to dilute

the acid mine drainage, and a small dilution pond was constructed to collect the numerous acid seeps. The area was revegetated with native and cool season grasses.

Sulfide minerals, commonly found in coal and the surrounding rock, oxidize when exposed to the air and are subsequently dissolved by surface flows and groundwater. This weathering process results in sulfuric acid forming and then showing up in the surface runoff and shallow groundwaters that feed the creeks. Freshwater aquatic life cannot tolerate acidic (low pH) water. Water quality sampling in 1999 showed the Tributary to Big Otter contained water too acidic to meet state water quality standards. Information obtained since 2002, however, shows that Big Otter Creek is no longer impaired due to low pH. It will be proposed for removal from the impaired waters list at the next listing cycle. Water quality monitoring of both Big Otter Creek and the Tributary continues. A TMDL document was written for Tributary to Big Otter to address the acidity impairment and ensure protection of aquatic life. The U.S. Environmental Protection Agency approved this TMDL October 21, 2004.

### **Big Otter Creek and Tributary to Big Otter Creek in Henry and St. Clair Counties, Missouri, Showing Sampling Sites and Impaired Segment**



An index to the sites may be found on the next page.

### Site Index

Site #1 - Big Otter Creek  
 Site #2 - Tributary Big Otter Creek 0.5 mile below AML  
 Site #3 - Big Otter Creek at Highway Z  
 Site #4 - Big Otter Creek near mouth

### Data for Big Otter Creek and Tributary

**Bolded numbers** indicate values outside Water Quality Standards of 6.5-9.0

Site	Site Name	Year	Month	Day	Time	Flow	Temp °C	DO	pH	SC	Alk	Acid	SO4	Cl
Site #1	Big Otter Creek	1996	2				11		8.1	730				
Site #1	Big Otter Creek	1997	10			0	11		7	310				
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	1996	2			0.1	10		<b>3.1</b>	1370				
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	1997	10			0	11		<b>3.3</b>	1150				
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2000	8	4	1200	0			<b>4.9</b>	290	0	4	125	6
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2002	7	5		0.01	26		<b>3.5</b>	580	2.5	118	361	5.9
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2002	8	28	1115	0	22		<b>4.4</b>	412	2.5	136	169	8
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	5	14	1120		17	7.6	6.6	420	11	32	140	15
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	5	29	1120		18	6.9	6.9	505	2.5	74	198	14
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	6	10	900		18	7.1	6.6	622	10	42	126	14
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	7	29	1010	0	23		<b>6</b>	510	2.5	12	196	13
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	12	3	1225	1	3	12	6.9	582	2.5	33	143	12
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2003	12	30	1120	1	4.5		<b>5.9</b>	295	5	50	100	11
Site #2	Trib. Big Otter Cr. 0.5mi.bl. AML	2004	2	25	1310		4	11	7	520	6	16	133	16
Site #3	Big Otter Creek at Hwy Z	1997	10			0	14		7.3	536				
Site #3	Big Otter Creek at Hwy Z	2002	7	5		0.3	27		7.2	693	156	2.5	96	50
Site #3	Big Otter Creek at Hwy Z	2002	8	28	1100	0								
Site #3	Big Otter Creek at Hwy Z	2003	5	14	1040		16	8.6	7.2	377	86	2.5	75	16
Site #3	Big Otter Creek at Hwy Z	2003	5	29	1050		17	7.4	7	460	101	2.5	78	17
Site #3	Big Otter Creek at Hwy Z	2003	6	10	830		18	7.3	7.3	790	95	2.5	66	17
Site #3	Big Otter Creek at Hwy Z	2003	12	3	1210		4	11	7.1	466	124	2.5	98	40
Site #3	Big Otter Creek at Hwy Z	2003	12	30	1110	1.5	4		7.3	323	56	2.5	69	14
Site #3	Big Otter Creek at Hwy Z	2004	2	25	1230		5	10	7.5	460	66	2.5	81	19
Site #4	Big Otter Creek near mouth	2003	5	14	1210		17	8	7.2	520	85	2.5	95	19
Site #4	Big Otter Creek near mouth	2003	5	29	1200		18	7.4	7.4	563	90	2.5	74	19
Site #4	Big Otter Creek near mouth	2003	6	10	940		19	7.9	7.4	497	88	2.5	65	18
Site #4	Big Otter Creek near mouth	2003	12	3	1245		4	11	7.5	489	90	2.5	94	27
Site #4	Big Otter Creek near mouth	2004	2	25	1135		4	9.8	7.6	485	57	2.5	93	19

Source: Missouri Department of Natural Resources

#### For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

P.O. Box 176, Jefferson City, MO 65102-0176

1-800-361-4827 or (573) 751-1300 office or (573) 526-5797 fax

Program Home Page: [www.dnr.mo.gov/wpscd/wpcp/index.html](http://www.dnr.mo.gov/wpscd/wpcp/index.html)